

## Claims

- [c1] 1. A method of producing a transgenic wheat plant comprising:  
providing an explant presenting a plurality of meristems;  
culturing said explant in a first multiple bud inducing media suitable for inducing production of a plurality of buds from at least one of said meristems;  
introducing exogenous DNA into at least one of said plurality of buds;  
removing said plurality of buds from said first media and transferring said plurality of buds to a second media suitable for induction of elongation of said buds into shoots;  
harvesting and transferring said shoots to a culture medium that promotes root development; and  
culturing said transferred shoots to produce plants.
- [c2] 2. The method of claim 1 wherein said multiple bud inducing media comprises a cytokinin and an auxin.
- [c3] 3. The method of claim 2 wherein said cytokinin is thidiazuron .
- [c4] 4. The method of claim 2 wherein the concentration of said cytokinin is between about 2.0mg/L and 7.5mg/L.
- [c5] 5. The method of claim 2 wherein said cytokinin is thidiazuron and said auxin is selected from the group consisting of 2,4-D and picloram.
- [c6] 6. The method of claim 5 wherein the concentration of thidiazuron is between about 2.0mg/L and 7.5mg/L and the concentration of auxin is between about 0.5mg/L and 2.0mg/L.
- [c7] 7. The method of claim 1 wherein said plurality of meristems contains the scutellar node.
- [c8] 8. The method of claim 1 wherein said explant is a wheat mesocotyl explant.
- [c9] 9. The method of claim 1 wherein said exogenous DNA comprises a nucleic acid encoding a protein capable of conferring resistance to a selection agent.
- [c10] 10. The method of claim 9 further comprising a step of selecting for plants

containing the protein conferring resistance to a selection agent.

- [c11] 11. The method of claim 1 wherein said exogenous DNA is introduced via biolistic particle bombardment.
- [c12] 12. The method of claim 1 wherein said exogenous DNA is introduced via *Agrobacterium*-mediated transformation.
- [c13] 13. A method of producing a transgenic wheat plant comprising:  
providing a wheat mesocotyl explant presenting a plurality of meristems;  
culturing said wheat mesocotyl explant on a first media, comprising thidiazuron at a concentration of between about 2.0mg/L and 7.5mg/L, and 2,4-D at a concentration of about 0.5mg/L and 2.0mg/L, to induce the production of a plurality of buds from at least one of said plurality of meristems;  
introducing exogenous DNA into at least one of the cells of said plurality of buds;  
removing said plurality of buds from said first media and transferring said plurality of buds to a second media suitable for induction of elongation of said buds into shoots;  
culturing said shoots to produce plants.
- [c14] 14. The method of claim 13 wherein said exogenous DNA is introduced via *Agrobacterium*-mediated transformation.
- [c15] 15. The method of claim 13 wherein said exogenous DNA is introduced via biolistic particle bombardment.
- [c16] 16. The method of claim 13 further comprising a step of selecting for plants containing the exogenous DNA.